CLAIMS

1. Electronic device comprising an active part, a first thin layer which is made of a semiconductor material and in which this active part is formed, and a substrate made of an electrically conductive material, this device being characterized in that it also comprises a carrier recombination zone which is located between the substrate and the first thin layer and which also ensures a resistive electric contact between this substrate and this first thin layer.

2. Device as in claim 1, wherein the carrier recombination zone is a second thin layer which is made of an electrically conductive material and which ensures electrically conductive bonding between the substrate and the first thin layer.

3. Device as in claim 1, wherein the two sides of the first thin layer are treated to form active zones of the device.

4. Device as in claim 1, wherein the material in which the carrier recombination zone is made is a metal.

5. Device as in claim 1, wherein the material in which the carrier recombination zone is made is a semiconductor/metal alloy.

6. Device as in claim 5, wherein the alloy in which the carrier recombination zone is made is chosen so that it is

stable with respect to the materials in which the substrate and the first thin layer are respectively made.

7. Device as in claim 1, wherein the material in which the substrate is made is a highly doped semiconductor, in particular highly doped silicon.

8. Device as in claim 7, wherein the material in which the carrier recombination zone is made is a metal and this metal is chosen so that, when fabricating the resistive electric contact, it forms a stable alloy with the highly doped semiconductor in which the substrate is made and with the semiconductor material in which the first thin layer is made.

9. Device as in claim 1, wherein the material in which the substrate is made is a metal.

10. Device as in claim 9, wherein the carrier recombination zone is made in the metal in which the substrate is made and is formed by part of this substrate.

11. Process for fabricating an electronic device, this process being characterized in that it comprises the following steps:

- part of the device is formed in a standard semiconductor substrate, on the front side of this standard semiconductor substrate,
- a treatment support (54) is fixed to the front side of the substrate,

- the standard semiconductor substrate is thinned via its rear side, so as to transform said substrate into a thin layer,

- another part of the device is formed in the standard semiconductor substrate so transformed, on the rear side of this standard semiconductor substrate,

- on the rear side of this standard semiconductor substrate and/or on a side of an electrically conductive substrate, a thin layer is deposited formed of a metal or of a metal/semiconductor alloy,

- via the thin layer formed of the metal or metal/semiconductor alloy, electrically conductive bonding is carried out between the electrically conductive substrate and the thin layer into which the standard semiconductor substrate was transformed, and

- the treatment support is removed.

12. Process for fabricating an electronic device, this process being characterized in that it comprises the following steps:

- part of the device is formed in a standard semiconductor substrate, on the rear side of this standard semiconductor substrate,

- on the rear side of this standard semiconductor substrate and/or on a side of an electrically conductive substrate, a thin layer is deposited formed of a metal or a metal/semiconductor alloy,

- electrically conductive bonding is carried out between the electrically conductive substrate and the standard semiconductor substrate, via the thin layer,

- the standard semiconductor substrate is thinned via its front side so as to transform said substrate into a thin layer, and

- another part of the device is formed in the standard semiconductor substrate so transformed, on the front side of this standard semiconductor substrate.

13. Process as in claim 11, wherein electric contacts of the device are also formed on the thin layer in which the standard semiconductor substrate was transformed, and on the electrically conductive substrate.

14. Process as in claim 11, wherein the electrically conductive substrate is made of a material chosen from among highly doped semiconductors in particular highly doped silicon, and conductors in particular metals.

15. Process as in claim 14, wherein the electrically conductive substrate is made of a material chosen from among highly doped semiconductors, in particular highly doped silicon, the metal or the metal/semiconductor alloy being chosen so that, after annealing subsequent to electrically conductive bonding, it forms a stable alloy with the material in which the electrically conductive substrate is made and with the material in which the standard semiconductor substrate is made.

16. Process as in claim 14, wherein the electrically conductive bonding step is preceded by a preparative step to prepare at least one of the two sides to be assembled by electrically conductive bonding, so as to promote this bonding.

17. Process as in claim 11, wherein electrically conductive bonding is chosen from among bonding by soldering, bonding by thermal compression and bonding by molecular adhesion.

18. Process as in claim 12, wherein electric contacts of the device are also formed on the thin layer in which the standard semiconductor substrate was transformed, and on the electrically conductive substrate.

19. Process as in claim 12, wherein the electrically conductive substrate is made of a material chosen from among highly doped semiconductors in particular highly doped silicon, and conductors in particular metals.

20. Process as in claim 19, wherein the electrically conductive substrate is made of a material chosen from among highly doped semiconductors, in particular highly doped silicon, the metal or the metal/semiconductor alloy being chosen so that, after annealing subsequent to electrically conductive bonding, it forms a stable alloy with the material in which the electrically conductive substrate is made and with the material in which the standard semiconductor substrate is made.

21. Process as in claim 19, wherein the electrically conductive bonding step is preceded by a preparative step to prepare at least one of the two sides to be assembled by electrically conductive bonding, so as to promote this bonding.

22. Process as in claim 12, wherein electrically conductive bonding is chosen from among bonding by soldering, bonding by thermal compression and bonding by molecular adhesion.